

DETAILED ACTION

1. The preliminary amendment filed April 19, 2006 has been received.

Drawings

2. The drawings are objected to because the lines, numbers and letters are not uniformly thick and well defined. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the engine to which the

casing is fitted and the flywheel must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "26" has been used to designate both piston (page 4, line 7) and the engine throttle position (page 4, line 23). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if

only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claims 13, 14 and 18 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend upon another multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 9-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Regarding claims 9, 11, 12, 15 and 17, the phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

9. Regarding claims 11, 12 and 17, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by
Alexander, Jr. et al.

1.
A watercraft 3 with an engine 5 and a clutch 33 having a clutch casing 43 and an output for transmitting drive from the engine to a transmission 14 of the watercraft, wherein the casing is fitted to the engine and the clutch is operable for controlled slippage (column 8, lines 24-26) to allow torque applied to the output to be varied.

2.
A watercraft as claimed in claim 1, wherein an input of the clutch is coupled to a flywheel 34 of the engine.

3.
A watercraft as claimed in claim 2, wherein a damper is provided between the flywheel and input (figure 5 clearly shows the damper between shoulder 117 and the driven disc 36 although it is not numbered or discussed).

4.
A watercraft as claimed in claim 2 or 3, wherein the casing is dimensioned to accommodate the flywheel 34.

5.
A clutch including an input shaft, an output and clutch means 33 operable for controlled slippage (column 8, lines 24-26) to allow torque applied to the output to be varied, wherein the clutch includes a clutch casing 43 for attachment to an engine of a watercraft.

6.
A clutch as claimed in claim 5, wherein the input shaft is arranged to couple directly to

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an engine output when the clutch casing is attached to the engine (see figure 5).

7.

A clutch as claimed in claim 5, wherein the clutch further includes a damper (shown in figure 5 between shoulder 117 and the driven disc 36) arranged to couple between the input shaft and the engine output.

8.

A clutch as claimed in claim 6 or 7, wherein the casing is dimensioned to accommodate the engine output when the clutch is attached to the engine.

12. Claims 9, 10, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 3505992.

9.

A decoupling clutch system for use in a marine craft, the system including a decoupling clutch 4 having a single clutch area and being separate from a gearbox or the

like 6, the decoupling clutch system including an input shaft for operative connection to a drive shaft of the marine craft, and being arranged to drive, via the decoupling clutch 4,

an output shaft which, in use, is operatively connected to a propeller, jet drive or the like 8 of the marine craft, the decoupling clutch system further including a piston or the like (inherently present) for controlling engagement of the clutch, a control system 10, means 12 for monitoring

the input shaft speed and transmitting the input shaft speed to the control system, means 14 for monitoring the output shaft speed and transmitting the output shaft speed to

the control system, the control system 10 being arranged to control slippage of the clutch

by monitoring both the input shaft speed and the output shaft speeds and adjusting the engaging forces on the clutch to adjust clutch slippage accordingly.

10.

A decoupling clutch system as claimed in claim 9 wherein the engaging force on the clutch provided by the piston is controlled by controlling the pressure in the piston using direct acting high flow electro hydraulic solenoids 18.

15.

A watercraft including a drive unit including an engine 2 and a transmission 6 and an output shaft to a propeller, jet drive, or the like 8 characterised by a decoupling clutch system including a clutch 4 being separate from a gearbox or the like 6 and having an input

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shaft operatively connected to a drive shaft of the marine craft, and being arranged to drive, via the decoupling clutch 4, an output shaft which is operatively connected to a propeller, jet drive or the like 8 of the marine craft, the decoupling clutch system further including a piston or the like (inherently present) for controlling engagement of the clutch, a control

system 10, means 12 for monitoring the input shaft speed and transmitting the input shaft speed to the control system, means 14 for monitoring the output shaft speed and transmitting the output shaft speed to the control system, the control system being arranged to control slippage of the clutch by monitoring both the input shaft speed and the output shaft speeds and adjusting the engaging forces on the clutch to adjust clutch slippage accordingly.

16.

A decoupling clutch system as claimed in claim 15 wherein the engaging force on the clutch provided by the piston is controlled by controlling the pressure in the piston using direct acting high flow electro hydraulic solenoids 18.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 11, 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 3505992 in view of Alexander, Jr. et al.

DE 3505992 does not disclose a biasing means such as a spring to disengage the clutch or to engage the clutch. Alexander, Jr. et al discloses spring 44 to engage the clutch and springs 49 to disengage the clutch. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to provide a spring to engage and disengage the clutch of DE 3505992 in view of the springs of Alexander, Jr. et al. Motivation to do so is to provide assistance

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to the hydraulic piston inherently present in DE 3505992 for engaging the disengaging the clutch.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tanaka is cited to show clutch 5 in the outboard engine.

Yamaoka et al is cited to show the damper 20. Bellanger 426, Bellanger 902, Kale 142, Kale 185, Kale 640 and Nielsen et al are cited to show the ecu's, speed sensors and electro hydraulic solenoids controlling slippage of the clutches. Lauterbach is cited to show the flywheel and clutch used in a jet propulsion drive.

16. Attached to this action is a brief description by DERWENT of the invention in DE 3505992A.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHERMAN D. BASINGER whose telephone number is (571)272-6679. The examiner can normally be reached on Monday through Friday, 5:30 a.m. to 2:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samuel J. Morano can be reached on 571-272-6684. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SHERMAN D BASINGER/
Primary Examiner, Art Unit 3617

1/24/08

DERWENT-ACC-NO: 1986-233011

DERWENT-WEEK: 198636

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TITLE: Regulator for marine propulsion
unit with friction
pressure of clutch - controls coupling
depending on max. permitted working contact
which is not achieved or not before end of slip

INVENTOR: HIRT, M

PATENT-ASSIGNEE: ZAHNRADERFAB RENK AG[RENK]

PRIORITY-DATA: 1985DE-3505992 (February 21, 1985)

PATENT-FAMILY:

PUB-NO	PAGES	PUB-DATE	MAIN-IPC
DE 3505992 A		August 28, 1986	N/A
008	N/A		
DE 3505992 C		May 23, 1990	N/A
000	N/A		
FI 8600647 A		August 22, 1986	N/A
000	N/A		
SU 1471943 A		April 7, 1989	N/A
000	N/A		

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		

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DE 3505992A	N/A	1985DE-
3505992	February 21, 1985	
SU 1471943A	N/A	1985SU-
3985462	December 9, 1985	

INT-CL (IPC): B63H023/30

ABSTRACTED-PUB-NO: DE 3505992A

BASIC-ABSTRACT:

A marine propulsion unit has a connectable friction clutch in the line drive between the ship's engine and propellor. A regulating unit (10) automatically controls or regulates the coupling pressure depending on a max. permitted working contact of the friction clutch (4), so that during its slipping phase, the max. permitted working contact is not achieved or not achieved before the end of the slipping phase. The regulating unit (10) has elements (12,14,16) for determining the input and output r.p.m. of the clutch (4), the torque at the clutch, the respective slip of the clutch.

A computer, depending on the values from the elements (12,14,16) computes the working contact in the course of a slipping phase of the clutch and compares it with the max. permitted value, and therefrom controls or regulates the clutch coupling pressure.

ADVANTAGE - Avoids overloading of clutch by too high working contact.

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Simultaneously prevents a throttling or suppression of r.p.m. of ship's engine, with corresp. high loading of ship's propellor e.g. in ice.

ABSTRACTED-PUB-NO: DE 3505992C

EQUIVALENT-ABSTRACTS:

A marine propulsion unit has a connectable friction clutch in the line drive between the ship's engine and propellor. A regulating unit (10) automatically controls or regulates the coupling pressure depending on a max. permitted working contact of the friction clutch (4), so that during its slipping phase, the max. permitted working contact is not achieved or not achieved before the end of the slipping phase. The regulating unit (10) has elements (12,14,16) for determining the input and output r.p.m. of the clutch (4), the torque at the clutch, the respective slip of the clutch.

A computer, depending on the values from the elements (12,14,16) computes the working contact in the course of a slipping phase of the clutch and compares it with the max. permitted value, and therefrom controls or regulates the clutch coupling pressure.

ADVANTAGE - Avoids overloading of clutch by too high working contact.
Simultaneously prevents a throttling or suppression of r.p.m. of ship's

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engine, with corresp. high loading of ship's propellor
e.g. in ice.

CHOSEN-DRAWING: Dwg.1/2

TITLE-TERMS: REGULATE MARINE PROPEL UNIT FRICTION

CLUTCH CONTROL COUPLE

PRESSURE CLUTCH DEPEND MAXIMUM PERMIT WORK
CONTACT ACHIEVE END SLIP

DERWENT-CLASS: Q24 W06

EPI-CODES: W06-C01C;

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: N1986-173865